

**PORTSMOUTH HARBOR  
AND PISCATAQUA RIVER  
NEW HAMPSHIRE AND MAINE**

**SURVEY  
REVIEW OF REPORTS**

**REPORT  
ON SMALL BOAT-CHANNELS IN THE  
PORTSMOUTH-NEWCASTLE AREA**



**U.S. ARMY ENGINEER DIVISION, NEW ENGLAND  
CORPS OF ENGINEERS  
WALTHAM, MASS.**

**FEBRUARY 26, 1964**

50

SURVEY (REVIEW OF REPORTS) OF PORTSMOUTH HARBOR  
AND PISCATAQUA RIVER, NEW HAMPSHIRE  
AND MAINE

(Small Boat Improvements in Portsmouth-Newcastle Area)

SYLLABUS

The Division Engineer finds that the locally desired improvement for Portsmouth Harbor and Piscataqua River in the vicinity of the Portsmouth-Newcastle-Rye area is warranted in that prospective benefits are sufficient to justify the improvement, but that local interests have not provided satisfactory indications of willingness and ability to meet the requirements of local cooperation. He, therefore, recommends that the existing project of Portsmouth Harbor and Piscataqua River, New Hampshire and Maine not be modified to provide improvement of the back-channels for small boating at this time.

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Maps Accompanying Report

Plate 1           -   Report Map - File No. 1608 D-8-3 Sheet 1 of 1

Plate 2 and 3   -   Survey Map - File No. 1497 D-8-3 Sheets 1 and 2

NEDED-R

26 February 1964

SUBJECT: Survey (Review of Reports) of Portsmouth Harbor and  
Piscataqua River, New Hampshire and Maine - Small  
Boat Improvements in the Portsmouth - Newcastle Area

TO: Chief of Engineers  
ATTN: ENGCW-P  
Washington, D. C.

AUTHORITY

1. This report is submitted in compliance with resolutions adopted 18 November 1958 by the Committee on Public Works of the United States Senate and 3 June 1959 by the Committee on Public Works of the House of Representatives, as quoted below.

"RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board of Engineers for Rivers and Harbors, created under Section 3 of the River and Harbor Act approved 13 June 1902, be, and is hereby requested to review the report of the Chief of Engineers on Portsmouth Harbor and Piscataqua River, Maine and New Hampshire, published as House Document No. 556, Eighty-Second Congress, Second Session, with a view of determining whether any modification of the existing project is advisable at the present time."

"RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE HOUSE OF REPRESENTATIVES, UNITED STATES, THAT THE Board of Engineers for Rivers and Harbors be, and is hereby, requested to review the reports on Portsmouth Harbor and Piscataqua River, Maine and New Hampshire, submitted in House Document No. 556, 83rd Congress, Second Session, and prior reports, with a view of determining whether modification of the existing project in any way is advisable at this time."

2. An interim report of the Board of Engineers for Rivers and Harbors dated 27 February 1962 on Portsmouth Harbor and Piscataqua River was favorable to desired improvements for deep-draft vessel commercial navigation. The present study includes consideration of the need for dredging the so-called back channels between the islands scattered along the south side of Portsmouth Harbor to provide a shallow-draft channel for small boats. This report is the second and final that will be submitted in compliance with the aforementioned Resolutions and deals with proposals for shallow-draft navigation improvements.

### PURPOSE AND EXTENT OF STUDY

3. The purpose of this study is to determine the need and justification for small boat channel improvements in the Portsmouth Harbor back channel area comprising Little Harbor, Sagamore Creek and those shallow areas on the south side of Portsmouth Harbor sheltered by a series of islands from the currents and exposure of the main harbor. This study does not include consideration of navigation improvements for Little Harbor itself for which separate study authorization exists, but does include consideration of a connecting channel from Little Harbor to the back channel area and to Portsmouth Harbor.

4. A public hearing was held on 24 May 1960 in Portsmouth, New Hampshire in order to obtain the views of local interests. At the hearing, local interests expressed their desire for small boat channel improvements connecting Portsmouth Harbor and Little Harbor.

5. In the preparation of this report, a detailed hydrographic survey consisting of soundings and probings was made from which the character and estimated quantities of the material lying in the area under study were determined. Available maps, commercial fishing and recreational boating statistics, and other data pertaining to the improvement of the back channels were studied. Information obtained from the public hearing and subsequent meetings have been supplemented by continuing contacts with local interests. Improvements requested at the hearing and later modifications of these requested improvements have been considered in this report.

## DESCRIPTION OF NAVIGATION CONDITIONS

6. The Piscataqua River forms a portion of the boundary between the States of Maine and New Hampshire. The mouth of the river is called Portsmouth Harbor. The "back channels" lie between the islands on the south side of Portsmouth Harbor. The Piscataqua River and lower Portsmouth Harbor, through which the extensive tidal basin of Great Bay and its six main tributary streams are funneled, has one of the swiftest currents of any commercial port in northeastern United States. Because of the natural depth of the main channel generally exceeding 35 feet, and the formation of the river banks, the main flow of current passes north and east of the natural barrier formed by Pierce's Island. Winds from the southerly quadrants cause difficult navigation conditions for small boats at the main harbor entrance at the time of the strongest tidal current. There is presently no adequate back-channel from Little Harbor to the upper part of Portsmouth Harbor particularly at the lower stages of the tide. The controlling depth of the Sagamore Creek Channel is about 3 feet, although the average depth in its winding channel is deeper. Similarly, the channel leading north from Sagamore Creek to Portsmouth Harbor has a controlling depth of about one foot, although for much of its length the depth ranges up to 6 feet or more. The channels west and north of Pierce's Island are similar in character. The average length of the natural back channel system is 1.73 miles. The tide ranges in Portsmouth Harbor are 7.8 feet (mean) and 9.0 feet (spring). Rapid tidal currents exist throughout the entire main portion of the Piscataqua River. The average velocity at full strength of the current in the main channel varies from about 2.6 knots to 4.0 knots, whereas, in the back channels it varies from less than one knot to between one and two knots.

7. The back channels are used by small fishing boats and recreational craft. The area is shown on the map accompanying this report, and on U.S. Coast and Geodetic Survey Charts 211 and 329.

## TRIBUTARY AREA

8. The area immediately tributary to the Portsmouth Harbor-Newcastle - Rye region comprises the city of Portsmouth, the town of Newcastle, and the town of Rye, all in New Hampshire. In 1960, Portsmouth had a population of 25,833, Newcastle 823 and Rye 3244. The

principal industries of the area are the U. S. Navy Yard, the Pease Airforce Base and the manufacture of shoes, gypsum products, the generation of electrical power, fishing, boatyard repair and related industries. In the entire coastal region, the resort and recreational industry ranks second among industries in New England. Resort hotels, located on Newcastle Island on land fronting on Little Harbor, exemplify this industry.

9. The area is served by highways (U.S. Route 1 and scenic coastal Route 1A, and Interstate Highway I-95) and the main line of the Boston and Maine Railroad, which carries passengers and freight.

#### BRIDGES AFFECTING NAVIGATION

10. There are five bridges that affect navigation in the area of desired improvements. These are as follows: The Rye - Newcastle bridge, spanning the channel between the shores of Rye and Newcastle Island; the Sagamore Creek bridge, spanning the Sagamore Creek within the city limit of Portsmouth on Route 1A from Portsmouth to Rye; the Portsmouth - Shapleigh (Marvin) Island bridge, joining the mainland of Portsmouth to Shapleigh (Marvin) Island; the Newcastle - Goat Island - Shapleigh (Marvin) Island bridge, joining Shapleigh (Marvin) Island to Goat Island and the causeway to Newcastle Island; the Portsmouth - Pierces Island bridge, joining the mainland of Portsmouth to Pierces Island. Pertinent data concerning these bridges are included in Table I.

Four of the five bridges impose vertical clearance limitations on navigation. There are no plans for alteration of these bridges.

#### PRIOR REPORTS

11. Portsmouth Harbor and Piscataqua River have been the subject of several previous reports. The two most recent are described in table II.



TABLE I

<u>Name</u>	<u>Purpose</u>	<u>Type</u>	<u>Horiz. Clearance (ft.)</u>	<u>Vert. Clearance (ft. above mhw)</u>	<u>Owner</u>	<u>Date of Completion</u>	<u>Plans Approved By War Dept.</u>	<u>Miles Above Mouth</u>	<u>Reference Point</u>
Rye - Newcastle	Hwy.	Bascule	29	12 (1)	N. H. State Hwy. Dept.	-	-	1.0	Little Harbor
Sagamore Creek	Hwy.	Fixed	153	7	N. H. State Hwy. Dept.	8/1/41	10/24/40	2.1	Little Harbor
Portsmouth - Shapleigh (Marvin) Island	Hwy.	Fixed	60	11	N. H. State Hwy. Dept.	-	-	3.0	Piscataqua R. Little Harbor
Newcastle - Goat Island- Shapleigh (Marvin) Island	Hwy.	Fixed	48	14	N. H. State Hwy. Dept.	5/24/41	4/8/41	2.75	Piscataqua R.
Portsmouth - Pierce Island	Hwy.		65	16	City of Portsmouth	12/1/25	9/9/24	3.0	Piscataqua R.

(1) When closed

TABLE II

<u>PUBLISHED IN</u>	<u>NATURE AND DATE OF REPORT</u>	<u>WORK CONSIDERED AND RECOMMENDATIONS</u>
H. Doc. No. 556 82nd Cong., 2nd Session	Survey (Review of Reports) 1952	Removal of ledge rock in the vicinity of Gangway Rock, the southwest point of Badgers Island and Boiling Rock to 35 feet below mean low water. Project modification au- thorized by R & H Act of 1954. Favorable
H. Doc. No. 482 87th Cong., 2nd Session	Survey Report 1962	Widening channel at depth of 35 feet by removal of rock at Henderson Point, Gangway Rock, Badgers Island, and Boiling Rock, and extension of channel 35 feet deep 400 feet wide from Boiling Rock to a turning basin of the same depth at Atlantic Terminal near the entrance to Great Bay. Favorable. Project authorized by R & H Act of 1962.

No recent report has considered areas that are pertinent to the present study of the back channels.

## EXISTING CORPS OF ENGINEERS' PROJECT

12. The original Corps of Engineers' project in the waterway was for Portsmouth Harbor only and was authorized by the River and Harbor Act of 1879 and modified in 1890. It provided for a stone breakwater extending from Goat Island to Newcastle Island, the removal of a portion of ledge rock on the southeast side of Badgers Island to a depth of 18 feet below mean low water, and the removal of Pier Rock to a depth of 12 feet below mean low water.

13. Work on the project was initiated in 1879 and the entire project completed in 1892. The breakwater was designed to eliminate dangerous cross currents in the vicinity of Goat Island ledge and was completed in 1881. Removal of part of Gangway Rock to 20 feet began in 1881 and was completed in 1888. Removal of ledge at the southwest point of Badgers Island to 18 feet was started in 1881 and completed in 1891. Removal of Pier Rock to 12 feet as authorized by the River and Harbor Act of 1890 was accomplished in the two-year period 1891 - 1892. The total expenditures in Portsmouth Harbor for these early projects were \$130,392.61, all of which was for new work.

14. House Document No. 556, 82nd Cong., 2nd Session, provided for the removal of ledge rock in the vicinity of Gangway Rock, the southwest point of Badger's Island and Boiling Rock to 35 feet below mean low water. Construction of this project was authorized by the River & Harbor Act of 1954 and initiated and completed in 1956. The total expenditure for this project was \$1,175,000, all of which was for new work.

15. House Document No. 482, 87th Congress, 2nd Session, modified the project by providing for widening of the 35-foot channel at bends by the removal of ledge rock at Henderson Point, Gangway Rock, Badger's Island, the Maine-New Hampshire Interstate Bridge, and Boiling Rock, and extending the channel 400-feet wide and 35 feet deep upstream from Boiling Rock to a turning basin of the same depth at the Atlantic Sales Terminal near the entrance to Great Bay. This project modification was authorized by the River and Harbor Act of 1962, construction was initiated in 1964. The latest (1963) estimate of cost of this modification is \$8,530,000, including preliminary study and design of \$20,000.

## LOCAL COOPERATION ON EXISTING AND PRIOR PROJECTS

16. The River and Harbor Acts of 1954 and 1962 required that local interests furnish free of cost to the United States all lands, easements and rights-of-way necessary for construction of the project, and hold and save the United States free from damages due to the construction works. The 1962 Act also requires local interests to provide and maintain without cost to the United States depths in berthing areas and local access channels serving the terminals commensurate with the project depth. The requirements of the 1954 Act were fully complied with prior to the dredging of that project modification in 1956. The New Hampshire Legislature in 1963 empowered the Governor to execute the assurances of local cooperation required by the River and Harbor Act of 1962, and assurances were forwarded to the State of New Hampshire for execution in January of 1964.

## OTHER IMPROVEMENTS

17. The New Hampshire Port Authority is constructing a \$1,000,000 State Pier for deep-draft commerce. No other improvements for general navigation in the study area are known to have been made by local interests.

## TERMINAL AND TRANSFER FACILITIES

18. Commercial fish landings in the Back-Channel area are restricted to privately-owned floats and small piers along the city waterfront west of Pierce's Island, maintained by companies and individuals engaged in lobster fishing. Recreational landings are located on the city waterfront at Prescott Park and consists of a basin area, west of Seaward Rocks at the northerly entrance to the Back Channel area. The basin has three berths, approximately 75 feet in length and can accommodate craft with a maximum draft of 5 feet at mean low water. A second float stage is located immediately north of the Pierce's Island bridge during the boating season and provides berthing spaces approximately 100 feet in length with a depth of 5 feet at mean low water. Neither landing has fueling or potable water facilities. In addition, a launching ramp for trailered boats has been constructed adjacent to the channel near the westerly end of Pierce's Island and is patronized by community and regional recreational boat owners.

19. A boatyard, lift and repair facility is located on Sagamore Creek, approximately 100 yards east of the Sagamore Bridge. The yard can accommodate boats up to 43 feet in length and 15 long tons in weight. The yard repairs wooden hull vessel and services gasoline and diesel marine engines. It has facilities for storing sixteen 25-foot boats under cover and one hundred boats up to 100 feet in length in the open. It has berths for 40 small craft alongside and moorings for an additional 40. The average number of boats stored is 125.

#### IMPROVEMENT DESIRED

20. At the public hearing held in 1960 in Portsmouth, local interests indicated a desire for channel improvement to the back channels of Portsmouth Harbor. They requested dredging the back channels and existing mud-flats adjacent to channels between the islands scattered along the south side of Portsmouth Harbor, so as to enlarge the navigable water areas for small boats at low tide, and to provide a small boat navigable channel from Sagamore Creek and Little Harbor to Portsmouth Harbor. Although the initial proposal was for a depth of 8 feet and continuous channels, local interests later indicated acceptability of a 6-foot depth and separate disconnected channels.

21. Consideration was given to the improvement initially desired for the small boat channels of Portsmouth Harbor. Fixed bridges with limited vertical clearances restrict improvement of continuous channels through these bridges and the craft that could pass under the bridges would be small, more suited to limited local navigation. An alternative plan of improvement was studied that would largely serve local needs, and would be suitable for use by boats of a size capable of navigation beyond the local area. The plan consists of a channel 100 feet wide, 6 feet deep from Little Harbor through the Rye-Newcastle drawbridge up Sagamore Creek to a public landing below Sagamore Creek bridge; a channel 100 feet wide, 6-feet deep from the Sagamore Creek channel north to the deep water area south of Portsmouth - Newcastle Bridge; a channel 100 feet wide, 6 feet deep from Portsmouth Harbor opposite Henderson's Point between Shapleigh and Pierce's Islands and across the Portsmouth basin to a public landing south of the Portsmouth - Pierce's Island bridge; plus a channel 100 feet wide, 6 feet deep north of the Portsmouth - Pierce Island bridge. Local interests indicated their general approval of this alternative plan.

22. At the hearing, local interests furnished general information supporting the need for the desired improvements, and subsequently they have furnished more detailed statistics which form the basis of the data in the paragraphs hereafter on "Commerce" and "Vessel Traffic."

#### EXISTING AND PROSPECTIVE COMMERCE

23. Waterborne commercial activity on the back channels results from activity of small lobster and fishing companies. Commerce in 1960 totalled 264 tons of lobster and 7 tons of fin fish. The average annual lobster catch exceeds 200 tons. The ex-vessel value of this catch is estimated at \$0.45 per pound, or about \$180,000. Future lobster commerce in this area is expected to continue at this level, due to the limited fishery resource.

#### VESSEL TRAFFIC

24. There are 22 lobster boats based on the back channels of the following approximate dimensions:

<u>No.</u>	<u>Length in feet</u>	<u>Draft in feet</u>
8	30-35	4
1	25	3
13	15	2

These boats are used for fishing about 180 days a year, for a total of nearly 4,000 round trips.

25. There is considerable recreational boat activity in the back channel area. Over 1,300 recreational boats are based on or near the back channels and use these waterways. Of these recreational craft, about 1,100 are outboards and 200 are inboards. In addition, numerous transient craft use these waterways. On the basis of a 10-week season and an estimate of two round trips a week per boat for about one-third of the recreational craft in the area, yields an estimated total of 8,600 round trips of recreational craft in these channels per season. These craft range in length from 15 feet to 65 feet and in draft from 2 feet to 5 feet.

## DIFFICULTIES ATTENDING NAVIGATION

26. The Piscataqua River and Lower Portsmouth Harbor, through which the extensive tidal basin of Great Bay and its six tributary streams are funneled, is one of the fastest flowing tidal waterways in northeastern United States. The main flow of current passes north and east of the natural barrier formed by Pierce's Island. Winds from the southerly quadrants cause a severe tide rip at the main harbor entrance. Commercial fishermen returning to the docks along the city waterfront and yachtsmen proceeding upstream to Newington or Great Bay can take advantage of the sheltered waters and moderate currents within Little Harbor and the Back Channel area only at the higher stages of the tide. Little Harbor, between Newcastle and Rye, while providing good shelter and adequate depths of water for larger craft, has irregular shoal areas. Local interests have stated that small craft have suffered damages from striking rocks within a few feet and southeast of the draw span of the bascule bridge in the navigable area at Little Harbor and have grounded on the shoal at the entrance to Sagamore Creek.

## WATER POWER AND OTHER SPECIAL SUBJECTS

27. The waterway is tidal. There is no problem of water power, flood control, pollution or any related subject pertinent to this navigation study. The U. S. Fish and Wildlife Service anticipates no significant adverse effect on fish and wildlife resources as a result of dredging operations, providing spoil material is deposited in designated areas as outlined on their plan. They do anticipate but do not evaluate benefits to lobster fishermen. Their report is included in Appendix A. The proposed improvement primarily affects recreational boating, a major facet of the recreational industry in the region.

## PLAN OF IMPROVEMENT

28. The plan of improvement considered most practicable for the back-channels area of Portsmouth Harbor consists of three parts as follows:

1. A channel 100 feet wide by 6 feet deep from Little Harbor to the sheltered backwater area northwest of Little Harbor, behind Newcastle Island, Goat Island and Shapleigh (or Marvin's) Island, with a branch channel 100 feet wide by 6 feet deep up Sagamore Creek to the bridge.

2. A channel 100 feet wide by 6 feet deep, entering from Portsmouth Harbor opposite Henderson's Point, and located southwest of Pierce's Island, extending to Pierce Island bridge.

3. A channel 100 feet wide by 6 feet deep north of Pierce Island with an anchorage of the same depth, 1.6 acres in area, in the basin off the city waterfront. The plan of improvement contemplates at least three public landings, one at or near the upstream end of each channel.

#### SHORE LINE CHANGES

29. The suggested improvement consists of dredging and removal of shoal in the waterway. The removal of material will cause no appreciable change in existing conditions and tidal currents. Therefore, no effect on the shoreline will result.

#### AIDS TO NAVIGATION

30. The United States Coast Guard has been consulted in regard to the need for establishing aids to navigation in the area considered for improvement. The first costs and annual maintenance costs for the necessary aids are as follows:

First Cost	\$6,000
Annual Maintenance	200

#### ESTIMATES OF FIRST COST

31. The first cost for channel improvement considered in this report is given below. Construction would consist of dredging to the proposed project depth in ordinary material and one foot deeper than project depth in ledge rock with an allowance of one foot over-depth dredging in each case. Side slopes of 1 vertical on 3 horizontal in ordinary material, and 1 vertical on 1 horizontal in ledge rock areas were used in the estimates. The unit price for dredging is based on removal by a hydraulic dredge with disposal of material



in nearby spoil disposal areas. Rock removal is based on removal after blasting by bucket dredge with disposal at sea or on nearby spoil disposal area. The estimated total first cost for the improvement includes allowances for contingencies, engineering, overhead and supervision and administration. Cost estimates are based on prices prevailing in January 1964.

32. The detailed estimate of cost is as follows:

First Costs (January 1964)

CHANNELS - 6 ft.

Dredging 204,000 cu. yds. @\$1.30	\$ 265,000
Rock Removal 2,000 cu. yds. @\$30.00	60,000
Contingencies @15%	49,000
Engineering and Design	10,000
Supervision and Administration	<u>16,000</u>
Total Cost	\$ 400,000

FEDERAL COST

Construction (0.60 x \$400,000)	\$ 240,000
Navigation Aids	<u>6,000</u>
Total Federal Cost	\$ 246,000

Preauthorization Studies	\$ 10,000
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NON-FEDERAL COST

Non-Federal share of construction (0.40 x 400,000)	\$ 160,000
Public landings (1)	0
Spoil disposal (2)	<u>0</u>
	\$ 160,000

TOTAL PROJECT COST	\$ 406,000
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(1) The public landings are estimated to cost \$40,000, but are considered to be self-liquidating and therefore will not constitute a project economic cost.

(2) The costs of diking spoil disposal areas is estimated at \$15,000. However, it is considered that the filled land will be enhanced by an equivalent value, so that no economic cost to the project is incurred in providing spoil disposal areas.

## ESTIMATES OF ANNUAL CHARGES

33. The estimated annual carrying charges have been computed on an assumed project life of 50 years and at an interest rate of 3 per cent on the Federal and non-Federal investment. Maintenance costs have been based on experience with similar projects. An allowance of 5,000 cubic yards of dredging per year has been made. The investment and annual charges for the improvement are shown below:

### Federal Investment

Corps of Engineers ( $0.60 \times \$400,000$ )	\$240,000 *
Coast Guard	<u>6,000</u>
	\$246,000

### Federal Annual Charges

Interest and Amortization ( $.03886)(246,000)$	\$ 9,550
Maintenance: Channel	7,000
Anchorage	500
Navigation aids	<u>200</u>
	\$ 17,250

\*Does not include preauthorization studies

### Non-Federal Annual Charges

Interest and Amortization ( $0.03886)(160,000)$	\$ 6,200
Total Annual Charges	\$ 23,450

## ESTIMATES OF BENEFITS

34. Improvement of the Portsmouth Harbor back channels will result in increased recreational boating and reduced costs of commercial fishing. Development of recreational boating has been restricted in the past by navigational hazards as well as by inadequate depths of water in the channels. The existing lobster fishing fleet is hampered in its operations and has experienced delays averaging 2 hours per boat during normal low water and about 4 hours per boat during extreme low tides.

35. The U.S. Fish and Wildlife Service report (See Appendix A) that the principal commercial fishery benefit accruing to the project would be a saving in operating costs to the lobster fisherman. Local interests report that shoals which exist in the vicinity of the Wentworth Bridge and West of Clampit and Leach's Island cause delays to the operating fishermen. Statistics are not available to show the exact length of delays incurred. However, the annual lobster catch is valued at \$180,000 and requires about 4,000 round trips of the lobster boats. These trips average about 10 hours so the gross value of catch per boat-hour is about \$4.50. About one-third of the trips are estimated to be delayed an average of 2 hours each, or a total of about 2,600 hours of delay. The gross value of this lost fishing time is about \$11,700. The operating costs in lobster fishing are considered to average about 60 percent of the ex-vessel value of the lobster caught, so the annual saving in lobster boat operating costs due to the improvement would be about \$7,000.

36. Benefits from increased recreational boating have been evaluated as the gain in annual return which the boat owner would enjoy if the channel were improved. The annual net return to the owners is taken as equal to the amount the owners would receive if they chartered their boats to others. This amount is expressed as a percentage of the current market value of the boat. The increase in value to the owner is the difference between the value received by the owner under present conditions and with the increased use made possible by the improvement. The benefit to the existing fleet is shown in Table III.

37. It is estimated that during the 50-year project life boating using the waterways concerned would double and this increase is independent of the waterway improvement. This represents an average increase in the size of the fleet using the waterway over the project life of 50 percent. The annual benefit to these future boats due to improved navigation conditions will increase from zero to a maximum of \$14,127 at the end of 50 years. The average annual equivalent of this benefit is  $0.39115 \times \$14,127$  or \$5,525.

38. It is also estimated that improvement of the waterway would cause an additional moderate expansion of recreational boating activity that would not otherwise occur. This added expansion is estimated at about 10 percent of the present boating activity. The computation of the benefits resulting from this new fleet expansion due solely to the waterway improvement, shown in Table IV following, results in an annual benefit of \$15,531 by the end of the 50-year project life. The average annual equivalent of this benefit is  $0.39115 \times \$15,531$  or \$6,075.

HARBOR: Portsmouth Harbor  
Back Channel

TABLE III BENEFITS TO RECREATIONAL BOATING  
EXISTING FLEET

DATE:

TYPE OF CRAFT	LENGTH (feet)	No. of boats	DEPRECIATED VALUE		PERCENT RETURN				VALUE \$	ON CRUISE		DAMAGES ELIMINATED			
			Average	Total	IDEAL	% OF IDEAL		GAIN		Avg. Days	% of Season	Value \$	Avg. Exper. \$	Avg. Elim. \$	Total Value \$
						Pres.	Future								
RECREATIONAL FLEET															
Outboards	Under 16	650	\$ 300	\$195,000	11	80	80	0	0						
Inboards	Under 16	7	\$ 500	3,500	9	80	80	0	0						
Outboards	16-25	468	\$1800	842,400	9	90	95	0.45	3791						
Inboards	16-25	110	\$3500	385,000	9	90	95	0.45	1733						
Outboards	26-40	2	\$2400	4,800	7	80	95	1.05	50						
Inboards	26-40	130	\$5000	650,000	7	80	95	1.05	6825						
Inboards	40-65	12	\$12000	144,000	6	75	95	1.20	1728						
CHARTER BOATS															
Cruisers	21-35 36-50 51-100														
TOTALS		1,379		\$2,224,700					\$14,127						

HARBOR: Portsmouth Harbor  
Back Channel

TABLE IV BENEFITS TO RECREATIONAL BOATING  
NEW BOATS

DATE:

Type of Craft	Length (feet)	No. of boats	DEPRECIATED VALUE		PERCENT RETURN				VALUE \$	ON CRUISE		DAMAGES ELIMINATED			
			Average	Total	IDEAL	% OF IDEAL	GAIN	Avg.		% of	Value	Avg.	Avg.	Total	
			\$	\$		Pres.	Future	Days		Season	\$	Exper.	Elim.	Value	
													\$	\$	\$
<u>RECREATIONAL FLEET</u>															
Outboards		10-20													
Outboards	16-25	47	1800	84,600	9	0	95	8.55	7,233						
Inboards	16-25	11	3500	38,500	9	0	95	8.55	3,292						
Inboards	26-40	13	5000	65,000	7	0	95	6.65	4,322						
Inboards	40-65	1	12000	12,000	6	0	95	5.70	684						
TOTALS		72	200,100						15,531						

TOTAL RECREATIONAL BOATING BENEFITS \$

39. Added recreational boating facilities are planned for the area encompassed by the project. The New Hampshire State Port Authority in cooperation with the State Recreation Division are planning the construction of a double launching ramp, flanked by piers and float stages in the vicinity of Witch Creek at the State-owned Fort Dearborn site in the near future. The City of Portsmouth proposes to expand the present launching ramp on Pierces Island by approximately 75 feet to accommodate the increasing volume of trailer-boat traffic. A second ramp is planned for the north side of Pierces Island in the cove east of Gangway Rock. A public landing is presently under construction at the granite block abutment of the former Pierces Island bridge site. Float stages will be secured to the face of the abutment to provide a small-boat berth approximately 85 feet in length.

40. The improved channel facilities considered would result in benefits which would accrue both to recreational boating and commercial fishing. The benefits are summarized as follows:

	<u>General</u>	<u>Local</u>	<u>Total</u>
Reduction in lobster fishing cost	7,000	-	7,000
Increased use of present recreational fleet	7,063	7,063	14,126
Increased return to future normal growth of recreational fleet	2,762	2,762	5,524
Added growth of recreational boating due to project	<u>3,038</u>	<u>3,038</u>	<u>6,076</u>
Total Benefits	19,863	12,863	32,726
Percentage	60	40	100

## COMPARISON OF BENEFITS AND COSTS

41. Comparison of the evaluated benefits of \$32,726 and the annual charges of \$23,450 indicate a benefit-cost ratio of 1.4 to 1 based on project effect on navigation.

## PROPOSED LOCAL COOPERATION

42. The benefits resulting from the improvement to the back channels of Portsmouth Harbor are partly to commercial fishing and partly to recreational boating, and have been shown in Paragraph 40 to be 60 percent general in nature and 40 percent local in nature. Accordingly, it is considered that local interests should make a cash contribution of 40 percent of the construction costs of the improvements. In accordance with existing policies, it is proposed and local interests should be required to:

- a. Provide lands, easements and rights-of-way, including diked spoil disposal areas.
- b. Hold and save the United States free from damages that may result from the construction and maintenance of the project.
- c. Provide, maintain and operate without cost to the United States adequate public landings or wharves with provisions for sale of motore fuel, lubricants and potable water, open to all on equal terms.
- d. Accomplish without cost to the United States such utility or other relocations as necessary for project purposes.
- e. Make a cash contribution of 40 percent of the construction costs of the improvements.
- f. Construct a public landing on Sagamore Creek; a public landing adjacent to the deep water area south of the Portsmouth-Newcastle bridge, and a public landing in the Portsmouth Basin north of that bridge, open to all on equal terms.

43. Meetings were held with State and local officials relative to the acceptability of the proposed improvement, and to the ability and willingness of local interests to meet the requirements of local cooperation. Although informal expressions were obtained as to acceptability of the project, no satisfactory statements have been forthcoming as to ability and willingness to meet the requirements of local cooperation. Subsequent correspondence with the New Hampshire Port Authority lead to the conclusion that the proposed improvement is not a priority need of the area at this time.

#### APPORTIONMENT OF COSTS AMONG INTERESTS

44. The total cost of construction is estimated at \$400,000 for initial construction exclusive of \$6,000 for aids to navigation. Local costs estimated at \$40,000 for public landings and 15,000 for spoil area dikes are also excluded as self-liquidating. In accordance with the proportion of general and local benefits 60 percent of the construction cost or \$240,000 would be apportioned to the United States. The United States Coast Guard apportionment is \$6,000 with \$200 for maintenance of navigation aids. The non-Federal share would be 40 percent of the construction cost or \$160,000 plus an estimated \$40,000 for public landings and \$15,000 for spoil disposal dikes for a total non-Federal cost of \$215,000.

#### COORDINATION WITH OTHER AGENCIES

45. All Federal, State and local agencies interested in the development of waterways and Portsmouth Harbor and the Back Channel area were notified of the public hearing held in Portsmouth on 24 May 1960. All interested agencies have been consulted throughout the study. The U.S. Fish and Wildlife Service has been notified and has no objection to the improvement of the small-boat channels except that spoil material from the small-boat channels be placed in spoil areas outlined on their plan. Comments in Appendix "A". Data furnished by the Port Authority included in Appendix B, and subsequent letters to the Port Authority relative to the requirements of local cooperation are included in Appendix C.



## CONCLUSION

46. The Division Engineer believes that modification of the existing project on the Piscataqua River in Portsmouth, New Hampshire to provide for dredging of small-boat channels in the vicinity of the Portsmouth-Newcastle-Rye area to permit safe navigation for shallow draft craft would be economically justified. Local interests have been unwilling or unable to provide assurances of intent to meet the specified requirements of local cooperation. Therefore no recommendation for a project modification is made at this time.

## RECOMMENDATION

47. The Division Engineer recommends no change at this time in the existing project at Portsmouth Harbor and Piscataqua River, New Hampshire and Maine.

P. C. HYZER  
Brigadier General, USA  
Division Engineer

APPENDIX "A"

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
59 Temple Place  
Boston, Massachusetts

December 5, 1961

Division Engineer  
New England Division  
U. S. Army, Corps of Engineers  
424 Trapelo Road  
Waltham 54, Massachusetts

Dear Sir:

This letter constitutes our conservation and development report on the proposed navigation improvements for Portsmouth Harbor, New Hampshire, and has the concurrence of the New Hampshire Fish and Game Department.

The improvements under consideration consist of two separate items, i.e.:

1. Widening and extending the existing deep-draft vessel channel in the Piscataqua River.
2. Provision of small-boat channels, 100 feet wide by 8 feet deep, between Portsmouth Harbor and Little Harbor, and up Sagamore Creek to State Highway 1A bridge.

Some commercial fishery benefits are anticipated as a result of the construction of the small-boat channels. The proposed small-boat channels would allow the lobster fishermen to travel to their fishing grounds via Little Harbor at all times, rather than only at high tide. Under existing conditions the fishermen have to use the main boat channel and travel around New Castle Island at low tide. The principal commercial fishery benefit would be a savings in operating costs to the lobster fishermen. We are not in a position to place a monetary value on this type of benefit.

With regard to the deep-draft vessel channel in the Piscataqua River, we anticipate no significant adverse effects on the fish and wildlife resources as a result of construction nor from spoil material if placed at sea, except in the Isles of Shoals area. The Isles of Shoals area off Portsmouth Harbor has supported an early winter herring fishery, and we have some indication of herring spawning near the islands in this area. No spoil material should be placed in the Isles of Shoals area.

With regard to your plans for the small-boat channels, we anticipate no significant adverse effects on fish and wildlife resources as a result of dredging operations. We understand that the spoil material will be mud and sand and probably will be placed on land or in tidal areas. The placement

of this spoil material could adversely effect fish and wildlife resources. Disposal of this spoil material will be least damaging to fish and wildlife resources if it is placed on areas outlined on Plate I.

Therefore, we recommend--

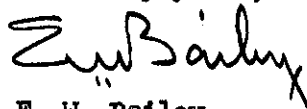
1. That spoil material from the deep-draft vessel channel not be placed in the Isles of Shoals area.

2. That all spoil material from the small-boat channels be placed in those spoil areas designated on Plate I.

No further studies by this Service will be required if spoil material is placed on the recommended areas. Should additional spoil disposal areas be selected, we would like to have notification sufficiently in advance of contract letting to prepare a new fish and wildlife report.

Thank you for the opportunity to report on this plan of improvement.

Sincerely yours,



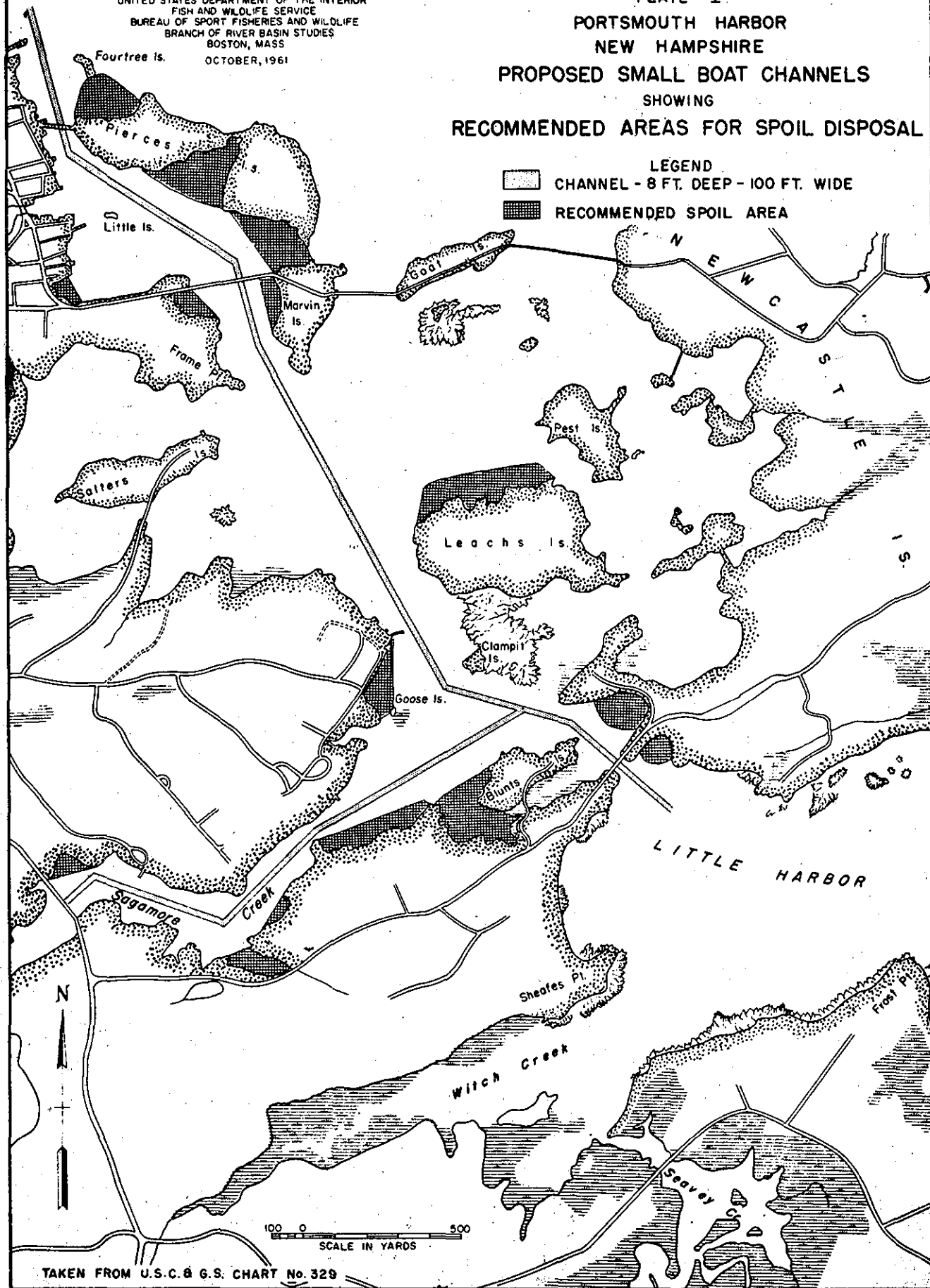
E. W. Bailey  
Acting Regional Director  
Bureau of Sport Fisheries & Wildlife



John T. Gharrett  
Regional Director  
Bureau of Commercial Fisheries

PREPARED BY  
UNITED STATES DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE  
BRANCH OF RIVER BASIN STUDIES  
BOSTON, MASS  
OCTOBER, 1961

PLATE - I  
PORTSMOUTH HARBOR  
NEW HAMPSHIRE  
PROPOSED SMALL BOAT CHANNELS  
SHOWING  
RECOMMENDED AREAS FOR SPOIL DISPOSAL



PORTSMOUTH HARBOR AND PISCATAQUA RIVER  
NEW HAMPSHIRE AND MAINE

(Small Boat Improvement in Portsmouth-Newcastle Area)

Information Called for by  
Senate Resolution 148, 85th Congress  
Adopted 28 January 1958

1. Navigation Problems. Portsmouth Harbor back channel area comprises Little Harbor, Sagamore Creek and the group of small islands that lies between Little Harbor and Portsmouth Harbor. The mouth of the Piscataqua River is called Portsmouth Harbor and the "back channels" are between the islands on the south side of Piscataqua River. The average length of the back channel system is 1.73 miles. Recreational craft and small fishing boats use the sheltered waters of the back channels. The rocky and shallow nature of the back channels have created navigation hazards to small craft whereby damage from rocks and grounding on the shoals have occurred. The controlling depth in Sagamore Creek is 3 feet and 1 foot in the creeks north of Sagamore Creek and those west and north of Pierce Island.

2. Improvement Considered. Local interests requested improvement of the back-channel area to provide shallow-draft channels for small boats. Studies of the improvement proposed by local interests were made and with changes in the original request to reduce costs, a plan of improvement was developed to permit navigation of small craft.

3. Recommended Improvement. A plan of improvement for the Portsmouth Harbor back-channel area is feasible from an engineering and economic point of view to provide (1) dredging of channels 100 feet wide by 6 feet deep in the improvement area from Little Harbor to Portsmouth Harbor, (2) branch channel from the main channel up Sagamore Creek to the bridge, (3) channel from Portsmouth Harbor opposite Henderson's Point, extending to the bridge to Pierce's Island, (4) channel north of Pierce's Island, with an anchorage of the same depth, 1.6 acres in area, in the basin off the city waterfront. The estimated first costs, annual charges and annual benefits, based on 1964 price levels, a 50-year project life and an interest rate of 3 percent on Federal funds are as follows:

a. Estimated First Cost of Construction

Federal	\$ 246,000(1)
Non-Federal	<u>160,000</u>

Total Estimated First Cost of Construction \$406,000

(1) Includes cost of navigation aids of \$6,000

b. Estimated Federal Annual Charges

Interest and Amortization	\$ 9,500
Maintenance Channel	7,000
Anchorage	500
Navigation aids	<u>200</u>

Total Estimated Federal Annual Charges \$ 17,250

c. Estimated Non-Federal Annual Charges

Interest and Amortization	\$ 6,200
---------------------------	----------

Total Federal & Non-Federal Charges \$ 23,450

d. Estimated Annual Benefits

Increased recreational boating and reduced costs of commercial fishing

<u>General</u>	<u>Local</u>	<u>Total</u>
\$19,863	\$12,863	\$32,726

e. Benefit-cost Ratio = 1.4 to 1

5. Local Cooperation. The benefits to be derived from the improvement to the back channels of Portsmouth Harbor are partly to commercial fishing and partly to recreational boating and are estimated to be 60 percent general and 40 percent local in nature, therefore, it is considered that local interests should make a cash contribution of 40 percent of the construction costs of the improvements. In addition, it is proposed that local interests should be required to:

a. Provide lands, easements and rights-of-way, including diked spoil disposal areas.

b. Hold and save the United States free from damages that may result from the construction and maintenance of the project.

c. Provide, maintain and operate, without cost to the United States, adequate public landings or wharves with provisions for sale of motor fuel, lubricants and potable water, open to all on equal terms.

d. Accomplish without cost to the United States such utility or other relocations as necessary for project purposes.

e. Make a cash contribution of 40 percent of the construction costs of the improvements.

f. Construct a public landing on Sagamore Creek, a public landing adjacent to the deep-water area south of the Portsmouth-Newcastle bridge and a public landing in the Portsmouth Basin north of that bridge, open to all on equal terms.

6. Discussion. Local interests have indicated informally the acceptability of the proposed plan of improvement. However, the inability of local interests to provide satisfactory indications of willingness and ability to meet the requirements of local cooperation precludes modification of the existing project for Portsmouth Harbor to provide small-craft facilities in the back channels.

NEW HAMPSHIRE STATE PORT AUTHORITY

With reference to the study of navigational improvements in the Portsmouth - Back Channel area, described in a letter of 17 August 1961 from the Division Engineer, U. S. Army Corps of Engineers, New England, this Authority recommends an anchorage area and small boat channels to follow the areas indicated by dotted lines on the attached chart.

It is further recommended, that if the study receives favorable endorsement as a Federal project, the Commander, First Coast Guard District be consulted in the matter of installing appropriate aids to navigation at or near the positions indicated on the attached chart and described in paragraph I. C, below.

Channels connecting the points detailed below are considered most desirable unless ledge or other conditions require changes.

I. DESCRIPTION OF IMPROVEMENT DESIRED

A. Little Harbor to Portsmouth Harbor: (All channels 100 feet wide by 8 ft. deep)

(1) Beginning at a point 100 yards south of Nun Buoy No. 8 in Little Harbor, remove shoal to a depth of 8 feet on a line bearing 124 degrees true from Can Buoy #3.

(2) Thence, beginning at the 6 foot shoal approximately 100 yards NW of buoy "C3", through the Bascule Bridge to the 12-foot natural basin northerly of Blunt's Island. Rocks, causing damage to small craft, have been reported within a few feet and southeast of the draw span of this bridge in the channel.

(3) A triangular basin, bounded in general by the following: (a) northeasterly by a line beginning at a point bearing 270 degrees true and distant 650 yards from the cupola of the Wentworth Hotel and running to a point approximately 100 yards SW of Campit Island at the southerly limit of the pipeline area, and (b) bounded westerly by a line bearing 260 degrees, true, and 925 yards from the cupola on the Wentworth Hotel, and running NE to a point



bearing 244 degrees, true, and 100 feet distant, from the position previously established at the southerly limit of the pipeline area.

(4) From the latter point in a direction approximately 344 degrees true (north, magnetic) toward the natural basin beginning at a point abreast of the three rocks which are approximately 175 yards NNW of the west tangent of Leach's Island.

(5) From the latter point and using as its NE boundary, a line connecting the westerly rock in the latter group in a direction 306 degrees true, to a rock approximately 115 yards from the southerly tip of Marvin Island.

(6) From the latter point to the center span of the bridge between Frame Point on the mainland and Marvin Island, a channel leading to an anchorage basin to be established in the area southwest of Pierce's Island and bounded by the Portsmouth waterfront on the west, by Frame Point on the south, and connected to the main harbor on the east by a channel to be established through the gut between Pierce Island and Marvin Island.

(7) Widen the existing channel that runs NNW from the Pierce Island bridge by approximately 100 feet to provide anchorage, clear of the fairway, for commercial lobstermen in that area. Use the shoal between Pierce's and Fourtree Islands as a spoil area, if feasible, to provide added protection for the anchorage. Detailed plans for development of this area are being prepared by the Planning Dept., City of Portsmouth, and will be forwarded at a later date.

B. Sagamore Creek to the Sagamore Avenue Bridge

(1) Beginning at a point at the westerly limit in the natural basin north and west of Blunt's Island, a channel 8 feet deep by 100 feet wide following the center line of the creek to the Sagamore Bridge.

(2) Remove the westerly rock in the narrows approximately 625 yards east of the Sagamore Bridge.

C. Navigational Aids to be Recommended:

(1) The installation of suitable navigational aids will be recommended to the Commander, First Coast Guard District at the following points:

(a) The rock, southwest of Clampit Island, which would form the turning point of the proposed channel.

(b) The westernmost rock in the cluster of three, MNW of the westerly tangent of Leach's Island

(c) The rock SSW of Marvin Island

(d) At a point bearing 260 degrees true and 925 yards from the cupola of the Wentworth Hotel marking the easterly entrance to Sagamore Creek.

It is noted that positions of the rocks mentioned in (a) and (b) above are not the same in USC & GS Chart No. 329 (revised 12/8/58) and the First Edition of Chart 211 which replaces it.

2. DESCRIPTION OF PRESENT NAVIGATION DIFFICULTIES:

(a) Tidal Currents:

The Piscataqua River and Lower Portsmouth Harbor, through which the extensive tidal basin of Great Bay and its six main tributary streams are funneled is one of the fastest flowing tidal waterways of any commercial port in northeastern United States. Due to the natural depth of the main channel and the formation of the river banks, the main flow of current passes north and east of the natural barrier formed by Pierce's Island. Winds from the southerly quadrants cause a severe tide rip at the main harbor entrance at the strength of the ebb tide. Commercial fisherman returning to the docks along the city waterfront and yachtsmen proceeding to Newington, Durham, Dover, and Great Bay can take advantage of the sheltered waters within Little Harbor and the Back Channel area only at the higher stages of the tide. B - 3

(b) Anchorage Areas:

Due to the marked increase, both in pleasure boating and full and part-time lobstering that has occurred since WWII, anchorage areas have become overcrowded to the point where larger yachts can no longer obtain berths or mooring areas on the New Hampshire side of the main harbor. The only anchorage areas available to commercial fishermen, within reasonable distance of their business locations are (1) in the restricted waters between Seward's Rocks near the main harbor and Little Island, southwest of Pierce's Island and (2) Sagamore Creek. Both areas are fairways and craft moored therein severely hamper the passage of other boats.

Yachtsmen are limited on the New Hampshire side of the main harbor to the special anchorage areas east and west of Salamander Point and to float-stage slips at the Portsmouth Yacht Club west of Salamander Point. Both locations afford little shelter from winds from the northerly quadrants, and are subjected to heavy wash from ocean-going vessels traversing the narrow waters of the lower harbor. Moreover, limiting depths in the special anchorage area are such that only the smaller craft can be anchored there.

Little Harbor, between New Castle and Rye, while providing good shelter and adequate depths of water for larger craft, has irregular shoal areas, and heretofore, has had no public access or landing facilities. A State-supported recreational area and public landing is planned for the former Fort Dearborn property in the near future.

(c) Hazards to Navigation:

Small craft have suffered damage from rocks mentioned in paragraphs IA.

(2); C. (1) (a) (b) (c) and have grounded on the shoal at the entrance to Sagamore Creek.

### 3. LANDING AND SERVICING FACILITIES IN THE HARBOUR

#### a. Commercial Landings

Other than the marina, described in paragraph 3. c. below, commercial landings are restricted to privately owned floats and small piers along the city waterfront west of Pierce's Island, maintained by companies and individuals engaged in lobster fishing.

#### b. Recreational Landings

Existing recreational landings, shown on the attached chart, are located on the city waterfront at Prescott Park. One consists of a basin area, west of Seward Rocks at the northerly entrance to the Back Channel area, constructed of granite retaining walls with stairs leading to the park. The basin has three berths, approximately 75 feet in length in 5 feet of water. A second float stage is located immediately north of the Pierce's Island Bridge during the boating season and provides berthing space approximately 100 feet in length with a least depth of 5 feet at mean low water. Neither landing has fueling or potable watering facilities.

A launching ramp for trailered boats has been constructed adjacent to the channel near the westerly end of Pierce's Island. This ramp is now heavily patronized by community and regional recreational boat owners.

All of the above facilities are owned and maintained by the City of Portsmouth as free recreational facilities. All landings are in good condition.

#### c. Boat Yards and Repair Facilities

A boat yard, lift and repair facility, operating under the name of "Mike's Marina" owned by Mr. Michael Kuchtey is located on the south side of Sagamore Creek, approximately 100 yards east of the Sagamore Bridge. The yard has a marine travel lift which can accommodate boats up to 43 feet in length and 15 long tons in weight.

The yard repairs wooden hull vessels and services gasoline and diesel marine engines. The yard has facilities for storing sixteen 25-foot boats under cover and one hundred boats up to 100 feet in length in the open. It has berths for 40 small craft alongside and moorings for an additional 40. The average number of boats serviced last year was stated as 150 and the average number of boats stored last year was 125. Approximate gross valuation of business last year was reported as \$100,000. The owner states that his business has doubled during the last four years.

2. New Facilities Planned:

Four new recreational boating facilities are planned for the area encompassed by the proposed project:

- (1) The State Port Authority in cooperation with the State Recreation Division are planning the construction of a double launching ramp, flanked by piers and float stages in the vicinity of Witch Creek at the State-owned Fort Dearborn site in the near future. Parking facilities for 100 cars and trailers are planned for the initial installation, with space reserved to double these facilities at a later date. Fueling service both gasoline and diesel, and potable water connections on both piers are planned.
- (2) The City of Portsmouth will expand the present launching ramp on Pierce's Island by approximately 75 feet to accommodate the increasing volume of trailer-boat traffic.
- (3) In addition, a second ramp is planned for the north side of the Island in the cove east of Gangway Rock.
- (4) Another public landing is presently under construction at the granite block abutment of the former Pierce's Island bridge site. The berth has been dredged to 4 feet at MLW. Float stages will be secured to the face of the abutment to provide a small-boat berth approximately 85 feet in length.

(5) The Planning Board of the City of Portsmouth on August 11, 1960, unanimously passed a resolution wherein it was recommended to the New Hampshire Port Authority and the U. S. Army Corps of Engineers that the following improvements be considered:

(a) Provision for more anchorage depth and area within the Fierce Island basin  
(b) The dredging of the gut between Fierce Island and the so-called Marvin Island

(c) The dredging and improvement of such other shore line areas within the aforesaid area which are necessary for Portsmouth's commercial and recreational uses.

Portsmouth's Master Plan Studies of 1961 (Chapter 4, "Land Use Plan, Marine Business", pages 130, 131) refers directly to the investigations and needs for harbor and channel improvement along the Portsmouth waterfront, the Fierce Island Basin, and the Little Harbor area.

The use of Fierce Island for trailer-boat traffic and open-space public use is recognized as rapidly increasing. It is anticipated that Fierce Island's westerly cove and the shoal area between Fierce Island and Four Tree Island be designated as "spoil areas" thus allowing the development of further public small-boat facilities.

#### 4. PRESENT USE OF THE HARBOR

a. Fishing Industry The area included in the proposed project encompasses practically all of the companies and boats engaged in various phases of the fishing industry, limited at this time, mainly to lobstering. Some fin fish are handled through the port at seasonal intervals. Lobster dealers who operate their own boats are listed below:

Blue Fin Fish Market	37 Marcy St., Portsmouth
Henry's Lobster Pound	Wentworth Rd., Portsmouth
LaCava Lobster Company	Lafayette Rd., Portsmouth
Newick Lobster Company	Ceres St., Portsmouth
Portsmouth Lobster Company, Inc.	State St., Portsmouth
Earl M. Sanders Lobster Co.	Pray St., Portsmouth

Wharves in the area are not identified by name. Shell fish and some fin fish are handled at all of the commercial wharves along the eastern end of the city waterfront. There are two lobster pounds on Sagamore Creek.

Total Fishing Commerce The local harbor master reported 264 long tons of lobster and 7 long tons of fin fish landed in the included area in 1960; and 219 long tons of lobsters landed during the first through third quarters of calendar 1961.

Present and Anticipated Fishing Fleet Owners of fishing craft, mooring<sup>area</sup> and the length of craft are tabulated below:

A. East of Sagamore Bridge

<u>Owner</u>	<u>Residence</u>	<u>LOA</u>
John Colter	Wentworth Rd., Ports.	35 ft.
Richard Stickney	Off Sagamore Rd., Ports.	35 ft.
Michael Kuchtey	Wentworth Rd., New Castle	35 ft.
Herbert Blanchard	Exeter	35 ft.
Leon Deu	North Hampton	35 ft.
Robert McDonough	Sagamore Rd., Ports.	35 ft.
Tracy Tarr	Wentworth Rd., New Castle	40 ft.
John Gailey	Islington St., Ports.	30 ft.

B. West of Sagamore Bridge

Edward Warrington	Kingston	37 ft.
Virgil Bagley	School St., Ports.	35 ft.
Neal Eldredge	Lincoln Ave., Ports.	35 ft.

Peter Swanson	Harrison Ave., Ports.	35 ft.
Geno J. Marconi	Marcy St., Ports.	35 ft.
Joseph Marconi (2 boats)	New Castle Ave., Ports.	35 ft.

Lobster Boats (O. B.) - Sagamore Creek

Theodore Williams	Little Harbor Rd., Ports.	15 ft.
William Morrison	Rye	15 ft.
Blanchard, Jr.	Exeter	15 ft.
Michael Flannigan		15 ft.
Clifton Seavey	Colonial Drive, Ports.	15 ft.
William Hathaway	Rye	15 ft.
Larry Ciotti	Portsmouth	15 ft.
Burdette Barrett	Hampton	15 ft.
Ned Jennings	Rye	15 ft.

Lobster Boats - Portsmouth South and East End Areas

William T. Rose	Gates St., Ports.	35 ft.
Wylie Brewster	Atkinson St., Ports.	35 ft.
Alex. Babula	Islington St., Ports.	35 ft.
Samuel Pendleton, Jr.	Partridge St., Ports.	35 ft.
Samuel Pendleton, Sr.	Partridge St., Ports. (O.B.)	15 ft.
Walter Ross	Ball St., Ports.	35 ft.
Anthony Raduazo	Gardner St., Ports.	25 ft.
George Ricker	Pickering St. (O. B.)	15 ft.
Frendo Marconi	Off Marcy St., Ports.	35 ft.
William Marconi (2 boats)	Shapleigh Island	35 ft.
Harold Burke	New Castle Ave. (O.B.)	15 ft.
Roger Gagnon		30 ft.
Robert Muchmore (Jos. Marconi's boat)	Portsmouth (O.B.)	15 ft.



### General Information

(1) Due to congestion in mooring areas along the city waterfront, the larger lobster boats are operating out of Sagamore Creek in increasing numbers. Four-foot shoals in the vicinity of the Wentworth Bridge and west of Clampit and Leach's Islands incur delays in their operations of about 2 hours during normal low water and about 3.5 hours during extreme low tides.

(2) As a part of the Port Authority plans for port development, Frederic R. Harris, Inc., consulting engineers, New York City, have been retained to plan the development of Port Authority land on Noble's Island and waterfront property at the north end of Market Street in Portsmouth. The northern tip of Noble's Island will be designed as a State fish pier to handle U. S. and foreign flag trawlers and carriers within a foreign trade zone. The plan is intended to foster the growth of a local fishery and related industries. A national mail advertising campaign will be aimed at attracting a fish-freezing plant to the area. Ocean distances from Portsmouth to Georges, Brown's and the Grand Banks compare favorably with distances to other New England based fishing fleets. The Noble's Island site is located on Routes US 1 and 95 for convenient overland truck pick-up and is served by rail sidings from the Boston and Maine Railroad. It is considered likely that this development will increase boat traffic in the Back Channel area.

### b. Recreational Boating

(1) Recreational boats registered in the immediate and surrounding area that would benefit from the improvement, based on registration for the period ending 30 June 1961 are:

<u>Type</u>	<u>Length</u>	<u>No.</u>	<u>Depreciated Value</u>	
			<u>Average</u>	<u>Total</u>
Outboards	Under 16'	650	\$ 300.00	\$195,000.00
Inboards	Under 16'	7	500.00	3500.00
Outboards	16' - 25'	468	1800.00	842,400.00
Inboards	16' - 25'	110	3500.00	385,000.00

B - 10

Outboards	26' - 40'	2	2800.00	4,800.00
Inboards	26' - 40'	130	5000.00	650,000.00
Inboards	40' - 65'	<u>12</u>	<u>12000.00</u>	<u>144,000.00</u>
Totals:		1379	-	\$ 2,224,700.00

The recreational fleet numbered 1680 pleasure craft registered through 30 June 1961 in tidal waters of the State according to U. S. Coast Guard machine records. Due to the limited number of sheltered harbors and the short length of New Hampshire's coast line, a substantial number of the above craft traverse the Portsmouth Harbor, Piscataqua River, and Little Bay through Furber Strait at some time during each boating season.

(2) The Piscataqua River, Great Bay and tributary rivers afford approximately 50 miles of inland sheltered water for shallow draft, recreational boating. That the area is not more extensively enjoyed is due mainly to the absence of adequate aids to navigation and hitherto, adequately charted areas in the upper reaches of the tributary streams. The 1960 edition of the USC&GS Chart 211, however, with greater coverage of this picturesque inland waterway, has increased outboard boating traffic to a marked degree. This Authority will undertake the installation and maintenance of private aids to navigation in areas beyond the normal scope of operations of the US Coast Guard to encourage greater enjoyment of these extensive natural waterways.

If the proposed improvement is completed, together with the proposed 12-foot Federal project in Little Harbor, it would provide sheltered access at all stages of the tide to the city's business district for small craft and tenders from the larger yachts that may anchor in Little Harbor. It would also provide a great increase in anchorage and float-stage moorings for pleasure boats in the Pierce Island basin immediately adjacent to the city waterfront.

The transient fleet, particularly trailered outboards, is expected to increase substantially when additional launching ramps are completed.

Greater use of the anchorage area at Little Harbor is anticipated when the 12-foot Federal project, together with the State sponsored recreational area and public landing at Fort Dearborn become usable.

c. Charter Boats

At present there is only one charter and excursion boat that is able to use the Back Channel area, and then only at high water. It is expected that the number of excursion boats will increase when the historical restoration of "Strawbery Banke" along the city waterfront is completed. Part of the colonial project includes mooring a full scale reproduction of the frigate "Ranger" in the channel project area.

5. Local Contributions Toward The Proposed Harbor Improvement

For the most part, the proposed Back Channel improvement, falls within the city limits and boundaries of the City of Portsmouth. Only a small area is included in the Town of Rye. The subject of local, city and State participation has been discussed in detail with the City Manager and the City Planner and both have indicated strong support for the entire project. It is possible that the area bordering Fierce's Island can produce sufficient income from slip rentals over a period to defray part of subsidiary costs for bulkheading and bank stabilization.

However, until bottom probes and samples have been taken to determine the feasibility of hydraulic dredging, enabling cost estimates to be established, no definite statement of degree of local city and State financial participation can be made.

In the event that cost estimates appear prohibitive when these figures become available, the matter of breaking the total project into two or more phases will be investigated and recommended.

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APPENDIX C

NEDGW

13 August 1963

Mr. Eugene P. Soles, Chairman  
New Hampshire State Port Authority  
County Court House  
Portsmouth, New Hampshire

Dear Mr. Soles:

Our letter of 5 March 1963 stated that the study of the desired improvement of small boat channels and development of waterfront facilities from Sagamore Creek and Little Harbor to Portsmouth Harbor had been scheduled for completion this spring. Information was requested as to present local desires for a project and an indication that the requirements of local cooperation would be met.

At a meeting held on 22 May 1963 with representatives of interested parties in the New Hampshire Port Authority office, a plan of improvement was selected by local interests from several plans suggested. The Corps of Engineers was to be advised of the willingness of local interests to meet the requirements of local cooperation. Since there has been no reply to date, it is assumed that a definite decision cannot be made by local interests at the present time. Therefore, in the event that this office is not furnished by Labor Day a satisfactory statement by local interests, through the State and local agencies which would be empowered to enter into a project of this nature, we plan to submit a report not recommending any Federal improvement at this time.

This unfavorable report would not preclude further consideration of Federal improvement of the back channels at Portsmouth

## APPENDIX C

NEDGW

Mr. Eugene P. Soles

Harbor. Based on the results of the recent study, further study of an improvement can be undertaken with little delay under the authority of Section 107 of the 1960 River and Harbor Act at such time as local interests determine that they can justify the need for a project and will meet the requirements of local cooperation.

Sincerely yours,

OTTO J. ROHDE

Colonel, Corps of Engineers

Deputy Division Engineer

## APPENDIX C

NEDGW

5 March 1963

Mr. Eugene P. Soles, Chairman  
New Hampshire Port Authority  
County Court House  
Portsmouth, New Hampshire

Dear Mr. Soles:

On 15 January 1963, a meeting was held in the office of the New Hampshire Port Authority at Portsmouth with representatives of the Corps of Engineers, officials of the City of Portsmouth and the New Hampshire Port Authority. At that time, the results of our study and plans of desired improvement to small boat channels, development of waterfront facilities and the estimated costs of these improvements from Sagamore Creek and Little Harbor to Portsmouth Harbor were discussed. It was explained that a recommendation for a Federal improvement could not be made until the local attitude was known on probable requirements of local cooperation, particularly a cash contribution and the location of public landings. At the conclusion of the meeting, it was our understanding that the City and the Port Authority would select a plan of improvement that would best serve the needs of local interests and for which the requirements of local cooperation would be met. To date, there has been no reply regarding the attitude of local interests in this matter.

This study had been scheduled for completion this spring. To accomplish this, we would have to know the desires of local interests by the end of March 1963. Information is requested as to whether a decision can be reached by that time.

If local desires can not be settled in the near future, we propose to submit a report that is unfavorable to Federal improvement at this time. This action would not preclude further study of an improvement at such time as local interests determine that they can justify the need for a project and meet the requirements of local cooperation. Because the improvements considered to date would fit

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NEDGW

Mr. Eugene P. Soles, Chairman  
New Hampshire State Port Authority,  
Portsmouth, N. H.

5 March 1963

the criteria for a project under Section 107 of the 1960 River and Harbor Act, a new study could be undertaken with little delay under that authority.

Sincerely yours,

P. C. HYZER  
Colonel, Corps of Engineers  
Division Engineer



